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REMARKS

Claims 17-22, 24 and 26-35 are pending in this application. By this Amendment, Applicants amend claims 17, 24, 27, 28, 30 and 31, and cancel claim 23.

Claims 20-22 were rejected under 35 U.S.C. § 102(e) as being anticipated by Nishiumi et al. (U.S. 5,973,704). Claims 23, 24 and 35 were rejected under 35 U.S.C. § 102(e) as being anticipated by Miyamoto et al. (U.S. 6,454,652). Claims 17-19, 27, 28 and 31 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Han et al., "Character Image Restoration Based on Characteristic Points". And claims 29, 30 and 32-34 were rejected under 35 U.S.C. § 103(a) as being unpatentable over Han et al. in view of Miyamoto et al. Applicants respectfully traverse these rejections.

Claim 20 recites:

"An image processing device for situating objects in virtual space formed by a computer system, developing a game while controlling the movement of said objects according to input control and set rules, and displaying circumstances in said virtual space as the screen seen from a virtual camera, wherein said image processing device comprises:

determination means for determining whether or not said objects are in a specific area in said virtual space; and

camera angle adjusting means for adjusting the angle of said virtual camera based on the results of the determination by said determination means; wherein

the angle of the virtual camera is 0 degrees when said object is not in said specific area, and the angle of the virtual camera is adjusted by the camera angle adjusting means to a value other than 0 degrees when said object is in said specific area." (Emphasis added)

The Examiner alleged that Nishiumi et al. teaches determination means for determining whether or not said objects are in a specific area and camera angle adjusting means for adjusting the angle of said virtual camera based on the results. Applicants respectfully disagree.

In contrast to the present claimed invention and the Examiner's allegation, Nishiumi et al. teaches that the camera position is changed only if an obstacle is detected between an object and the camera. Thus, Nishiumi et al. teaches determination means for determining whether an obstacle is located between an object

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and the camera, **NOT** "determination means for determining whether or not said objects are in a specific area in said virtual space" (emphasis added) as recited in the present claimed invention.

Accordingly, Applicants respectfully submit that Nishiumi et al. fails to teach or suggest the unique combination and arrangement of elements recited in claim 20.

Claim 24 recites:

"An image processing device having an image generating display means for converting virtual space constructed with a three-dimensional model including a plurality of polygons to two-dimensional images seen from a virtual camera in any position, and displaying them on a display device, wherein said image processing device comprises:

angle computing means for computing the angle between an eye direction vector showing the direction in which said virtual camera is facing and a normal line vector showing the orientation of the plane of certain polygons situated in said virtual space; and

polygon tilting means for changing the coordinate values of the vertices of said polygons, so that the angle computed by said angle computing means assumes a desired value, such that the visibility of the polygons from the virtual camera is improved; wherein

the shape of an object formed by the polygons is modified such that the visible area thereof is increased." (Emphasis added)

The Examiner alleged that Miyamoto et al. teaches angle computing means for computing the angle between an eye direction vector showing the direction in which said virtual camera is facing in a normal line vector, polygon tilting means for changing the coordinate values of the vertices of said polygons, and that Miyamoto et al. discloses determining directionality of a polygon by the normal vector and eye point.

However, contrary to the present claimed invention and the Examiner's allegations, Miyamoto merely teaches adjusting the angle of an upper body of a character in the game (e.g., the upper body of Mario). Miyamoto fails to teach or suggest "polygon tilting means for changing the coordinate values of the vertices of said polygons, so that the angle computed by said angle computing means assumes a desired value, such that the visibility of the polygons from the virtual camera is improved" wherein "the shape of an object formed by the polygons is modified such that

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the visible area thereof is increased" (emphasis added) as recited in the present claimed invention. The upper body of the character in the game (e.g., the upper body of Mario) is always the same size and shape regardless of the angle of the upper body.

Accordingly, Applicants respectfully submit that Miyamoto et al. fails to teach or suggest the unique combination and arrangement of elements recited in claim 24 of the present application.

Claim 35 recites:

"A game device for situating objects in virtual space formed in a computer system, developing a game while controlling the movements of said objects according to input control and set rules, and displaying circumstances in said virtual space on a screen as seen from a virtual camera, said game device comprising:

polygons forming lines situated along a reference plane serving as a reference in a virtual space such that the reference plane and the polygons have a predetermined, fixed relationship to one another; and

a position changing means for changing positions of said polygons to enlarge an area of said polygons according to the angle relationship between said virtual camera and said polygons, such that the visibility of the polygons from the virtual camera is improved." (Emphasis added)

The Examiner alleged that Miyamoto et al. teaches polygons forming planes in a game and camera modes for causing the camera angle to change to enable for a more distant view.

However, Miyamoto et al. merely teaches moving a virtual camera and changing the angle thereof. Miyamoto et al. clearly fails to teach or suggest polygons forming lines which are situated along a reference plane, and certainly fails to teach or suggest "polygons forming lines situated along a reference plane serving as a reference in a virtual space such that the reference plane and the polygons have a predetermined, fixed relationship to one another" and "a position changing means for changing positions of said polygons to enlarge an area of said polygons according to the angle relationship between said virtual camera and said polygons, such that the visibility of the polygons from the virtual camera is improved" as recited in the present claimed invention. In contrast, the polygons of Miyamoto et al. are portions of objects which are

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clearly on situated along a reference plane.

Accordingly, Applicants respectfully submit that Miyamoto et al. fails to teach or suggest the unique combination of elements recited in claims 35 of the present application.

Claim 17 as been amended to recite:

"An image processing device for situating objects in virtual space by a computer system, developing a game while controlling the movements of said objects according to input control and set rules, and displaying circumstances in said virtual space as the screen seen from a virtual camera, wherein said image processing device comprises:

polygons forming lines situated along a reference plane serving as the reference in said virtual space such that the reference plane and the polygons have a predetermined, fixed relationship to one another;

determination means for determining the positional relationship between said polygons and said virtual camera; and

polygon tilting means for tilting said polygons, according to the results of the determination, so as to increase the surface area of said polygons seen from said virtual camera to improve the visibility of the polygons from the virtual camera; wherein

said polygon tilting means only tilts said polygons when the polygons forming lines are at least a predetermined distance away from the virtual camera." (Emphasis added)

Claims 27, 28 and 31 recite features that are similar to the features recited in claim 17, including the emphasized features.

The Examiner alleged that Han et al. teaches polygons forming lines situated along a reference plane, polygons having a predetermined and fixed relationship to one another, determination means for determining the positional relationship and polygon tilting means for tilting the polygons. In addition, the Examiner alleged that it would have been obvious that the visual angle disclosed in Han et al. for viewing images would constitute a virtual camera for view images. Applicants respectfully disagree.

In contrast to the present claimed invention and the Examiner's allegations, Han merely teaches forming and restoring the tilted polygons based on three reference points. Han et al. fails to teach or suggest any polygons forming lines situated on a reference plane, determining the distance of the polygon edges based on the angle of the virtual camera and the line polygon vertices, and tilting the line polygons only when

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the line polygons are at least a predetermined distance away from the virtual camera. Thus, Han et al. clearly fails to teach or suggest "said polygon tilting means only tilts said polygons when the polygons forming lines are at least a predetermined distance away from the virtual camera" as recited in the present claimed invention. In fact, Han et al. fails to teach or suggest that line polygons could or should be tilted when the distance between the line polygons and the virtual camera is greater than a predetermined distance.

Accordingly, Applicants respectfully submit that Han et al. clearly fails to teach or suggest the unique combination and arrangement of elements recited in claims 17, 27, 28 and 31 of the present applications.

In view of the foregoing amendments and remarks, Applicants respectfully submit that claims 17, 20, 24, 27, 28, 31 and 35 are allowable. Claims 18, 19, 21, 22, 26, 29, 30 and 32-34 depend upon claims 17, 20, 24, 27, 28, 31 and 35, and are therefore allowable for at least the reasons that claims 17, 20, 24, 27, 28, 31 and 35 are allowable.

In view of the foregoing Amendments and Remarks, Applicants respectfully submit that this Application is in condition for allowance. Favorable consideration and prompt allowance are respectfully solicited.

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The Commissioner is authorized to charge any shortage in fees due in connection with the filing of this paper, including extension of time fees, to Deposit Account No. 50-1353.

Respectfully submitted,

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VERSION WITH MARKINGS TO SHOW CHANGES MADE

17. An image processing device for situating objects in virtual space by a computer system, developing a game while controlling the movements of said objects according to input control and set rules, and displaying circumstances in said virtual space as the screen seen from a virtual camera, wherein said image processing device comprises:

polygons forming lines situated along a reference plane serving as the reference in said virtual space such that the reference plane and the polygons have a predetermined, fixed relationship to one another;

determination means for determining the positional relationship between said polygons and said virtual camera; and

polygon tilting means for tilting said polygons, according to the results of the determination, so as to increase the surface area of said polygons seen from said virtual camera to improve the visibility of the polygons from the virtual camera; wherein

said polygon tilting means only tilts said polygons when the polygons forming lines are at least a predetermined distance away from the virtual camera.

24. An image processing device having an image generating display means for converting virtual space constructed with a three-dimensional model including a plurality of polygons to two-dimensional images seen from a virtual camera in any position, and displaying them on a display device, wherein said image processing device comprises:

angle computing means for computing the angle between an eye direction vector showing the direction in which said virtual camera is facing and a normal line vector showing the orientation of the plane of certain polygons situated in said virtual space; and

polygon tilting means for changing the coordinate values of the vertices of said polygons, so that the angle computed by said angle computing means assumes a desired value, such that the visibility of the polygons from the virtual camera is

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improved; wherein

the shape of an object formed by the polygons is modified such that the visible area thereof is increased.

27. An image processing device for displaying circumstances in virtual three-dimensional space in the form of images seen from a camera, wherein said image processing device comprises:

polygons forming lines situated along a reference plane serving as a reference in said virtual three-dimensional space such that the reference plane and the polygons have a predetermined, fixed relationship to one another;

determination means for determining the positional relationship between said polygons and said virtual camera; and

polygon tilting means for tilting said polygons, according to the results of the determination by said determination means, so as to increase the surface area of said polygons seen from the virtual camera to improve the visibility of the polygons from the virtual camera; wherein

said polygon tilting means only tilts said polygons when the polygons forming lines are at least a predetermined distance away from the virtual camera.

28. An image processing device for displaying circumstances in virtual three-dimensional space in the form of images seen from a virtual camera, wherein said image processing device comprises:

polygons forming lines situated along a reference plane serving as a reference in said virtual three-dimensional space such that the reference plane and the polygons have a predetermined, fixed relationship to one another;

determination means for determining the positional relationship between said polygons and said virtual camera; and

polygon tilting means for tilting said polygons, according to the results of the determination by said determination means, so as to allow the vertices in the interior, relative to said virtual camera, of said polygons to stand out from said reference plane,

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while centered on the vertices in the from, relative to said virtual camera, of said polygons; wherein

said polygon tilting means only tilts said polygons when the polygons forming lines are at least a predetermined distance away from the virtual camera.

30. The game device according to Claim 29, characterized in that said game is a game in which objects are situated in a game field formed on a reference plane, and said polygons are polygons forming lines [described on] designating boundaries of said game field.

31. An image processing device for displaying circumstances in virtual three-dimensional space in the form of images seen from a virtual camera, wherein said image processing device comprises:

polygons forming lines situated in said virtual three-dimensional space;

determination means for determining the positional relationship between said polygons and said virtual camera; and

polygon tilting means for tilting said polygons, according to the results determined by said determination means, so as to increase the surface area of said polygons as seen from the virtual camera to improve the visibility of said polygons; wherein

said polygon tilting means only tilts said polygons when the polygons forming lines are at least a predetermined distance away from the virtual camera.